

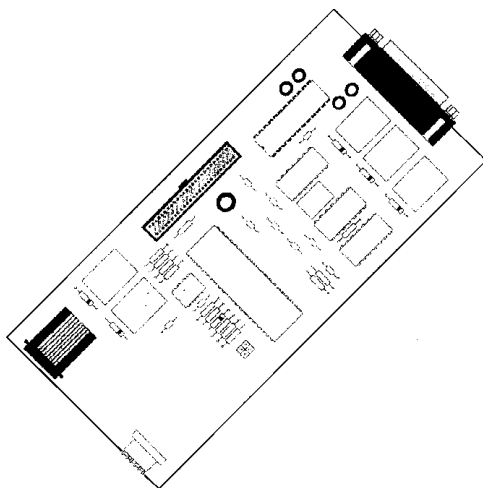


**POWER PROTECTION**

# **UPStation<sup>®</sup> S**

**VCR232C/VCR232CR Option  
RS-232 with Summary Alarm  
3.5 kVA through 18 kVA**

## **Installation & Instruction Manual**



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## IMPORTANT SAFETY INSTRUCTIONS

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This manual contains important instructions that should be followed during the installation and maintenance of the VCR232C/VCR232CR option.



### **WARNING**

**LETHAL VOLTAGES MAY BE PRESENT WITHIN THE UPSTATION S EVEN WHEN IT IS APPARENTLY NOT OPERATING. OBSERVE ALL CAUTIONS AND WARNINGS IN THIS MANUAL AS WELL AS THE UPSTATION S USERS MANUAL. FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY OR DEATH.**

**REFER UPSTATION S UNIT TO QUALIFIED SERVICE PERSONNEL IF MAINTENANCE IS REQUIRED. DO NOT WORK ON THIS EQUIPMENT UNLESS YOU ARE FULLY QUALIFIED TO DO SO. NEVER WORK ALONE.**

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## 1.0 INTRODUCTION

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### 1.1 Description

The VCR232C/VCR232CR option combines three modes of communications: serial communications, AS/400 contact closures and customer-definable UPS status relays. The RS-232 enables communications with the UPS via a modem or SiteNet 2. The contact closures provide communication to SiteNet 1 and AS/400. Programmable relays allow the UPS to send status signals to remote monitoring devices. If desired, all modes can be utilized simultaneously.

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### 1.1.1 RS-232 Serial Communications

Installing the VCR232C/VCR232CR board provides the serial communications to SiteNet 2 via the DB25 connector.

#### Modem/Host Computer/Terminal

All information and functions accessible through the control panel are also accessible by a terminal, host computer, or modem through the RS-232 DB25 connector. A terminal or computer can be connected to the RS-232 DB25 connector directly or through a modem connection. The UPS can dial out to a selected phone number to report alarm conditions and will connect when called from a terminal. The alarms that will initiate a modem auto-dial are as follows:

Battery failed test
Battery SCR fault (short or open)
Bypass shutdown due to overload (UPS shutdown)
Charger shutdown due to over temperature
Control power supply failure
DC bus under voltage
Excessive retransfer attempts
Inverter shutdown due to overcurrent
Inverter shutdown due to overload
Inverter shutdown due to overtemperature
Inverter shutdown due to under/over voltage
Low battery
On battery
PFC fault (hardware fault)
PFC shutdown due to over temperature
PFC voltage high
PFC voltage low
RAM test failed
ROM test failed
Time-out fault (self test at start-up)
UPS fault
User initiated UPS shutdown

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### 1.1.2 Contact Closures & AS/400

The DB25 connector on the RS-232 board also provides the following nominally open (NO) contacts. These contacts are rated at 1 A, 30 VDC/AC and may also be used for remote monitoring.

UPS output available

Battery discharging

Low battery reserve

Bypass active (if available)

### 1.1.3 Programmable Relays

Through the RJ45 connector, there are (2) relays that can be programmed to send out one or any combination of alarms (equivalent to a summary alarm) in either a normally closed (NC) or nominally-open (NO) state. The alarms will change the state of the relays only for the duration of the alarm (i.e., they are non-latching). Selecting which alarms are vent out on the relays is easily performed via the LCD display on the front panel of the UPStation S.

Reference the UPStation S User Manual for additional information on the DB25 and its pin-outs.



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## 1.2 Contents

The VCR232C/VCR232CR kit includes the following parts. Please ensure your kit has arrived with all the required parts.

Part	Purpose
25' Cable with one RJ45 connector	For customer use
13" Cable with two RJ45 connectors	For internal (metal plate to VCR232C/VCR232CR) connection
RS-232C Printed Circuit Board	Plugs Into existing microprocessor board
Back Plate	Replaces existing metal plate
Manual	Installation and Instructions

## 1.3 Tools Required

The VCR232C/VCR232CR option requires only a Phillips screwdriver for installation.

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## 2.0 INSTALLATION

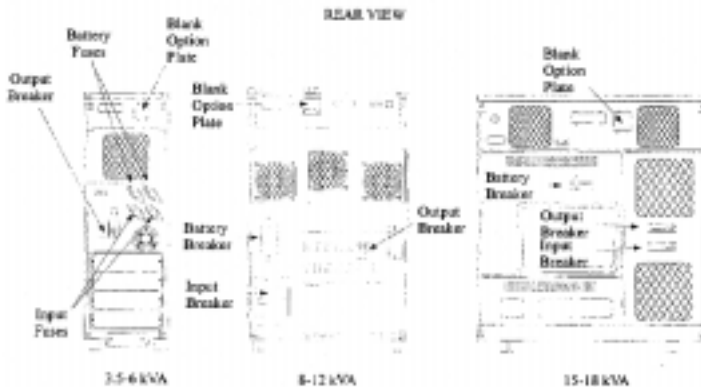
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### 2.1 Safety Precautions

To prevent any damage to the equipment and/or any individuals, ensure the UPStation S is off, input power is removed and the battery string is disconnected. This can be accomplished by using the following shutdown procedure. Refer to **Figure 1** for component location.

- Verify that customer loads are shut down and disconnected prior to opening UPS output breaker.
- After shutdown verification, press the off button four times until output breaker trips.
- Turn off (open) customer feed breaker.
- Remove battery fuses (3.5 - 6 kVA) or open battery breaker (8 - 18 kVA).
- Remove input fuses (3.5 - 6 kVA) or open input breaker (8 - 18 kVA).

**Figure 1 Location of Protective Breakers, Fuses**

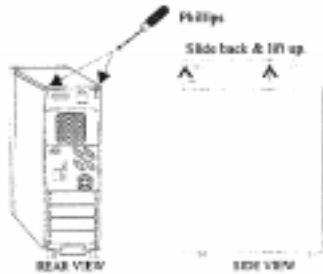


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## 2.2 Top Cover Removal

As illustrated in **Figure 2 (3.5 - 6 kVA)**, remove top cover retaining screws. After screws are removed, slide the top back and lift up. Place the top cover and screws in location where they may be reinstalled after VCR232C/VCR232CR installation.

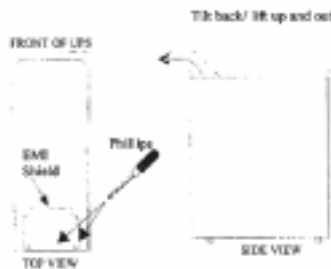
**Figure 2 Top Cover Retaining Screws**



## 2.3 EMI Shield Removal

As illustrated in **Figure 3 (3.5 - 6 kVA)**, remove small EMI shield retaining screws. After screws are removed, tilt the small EMI shield back and lift up and out. Place the small EMI shield and screws in location where they may be reinstalled after VCR232C/VCR232CR installation.

**Figure 3 EMI Shield Removal**



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## 2.4 Metal Option Plate Removal

In order to install the VCR232C/VCR232CR option, the metal plate installed in the factory must be removed. As illustrated in **Figure 4**, remove the existing metal plate retaining screws. Remove and discard the metal plate. Place the screws in a location where they may be reinstalled after the VCR232C/VCR232CR installation is complete.

**Figure 4 Option Plate Removal**



## 2.5 VCR232C/VCR232CR Installation

The installation of the new VCR232C/VCR232CR board is a simple procedure. The board plugs into the J6 on the microprocessor board (see **Figure 5**).

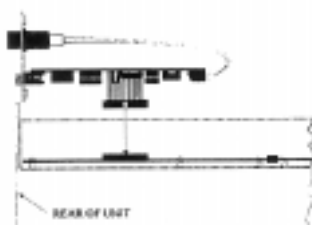
**Figure 5 J6 Location on Microprocessor Board**



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Turn the VCR232C/VCR232CR board with the components facing downward. P6 on the VCR232C/VCR232CR board plugs directly into J6 on the microprocessor board as illustrated in **Figure 6**.

**Figure 6 Proper Alignment of VCR232C/VCR232CR Board With J6**



The new option plate mounted on the VCR232C/VCR232CR board should line up where the metal plate was removed. Reinsert the four screws that were holding the original metal plate in place as illustrated in **Figure 7**.

**Figure 7 Installing New Option Plate**



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## 2.6 Cable Connections

Connection to the customer supplied remote monitoring equipment can now be made. Connection limits are as follows:

- Relays rated at maximum of 1 A, 120 V.
- Maximum cable length is 25 feet.
- Connection to UPS is a RJ45.
- DO NOT run in same conduit as power wiring.

Each relay has a common, normally open, and normally closed connection. The 25 foot cable included with the kit is for connection from the UPStation S to the remote monitoring equipment. The end with the RJ45 plugs directly into the new VCR232C/ VCR232CR board on the back of the unit. The end for connection to the remote monitoring equipment is pigtail wires.

The color code for connection is as follows:

<b>Blue</b>	Relay 1 Common
<b>Orange</b>	Relay 1 NC
<b>Black</b>	Relay 1 NO
<b>Red</b>	Relay 2 Common
<b>Green</b>	Relay 2 NC
<b>Yellow</b>	Relay 2 NO
<b>Brown</b>	No Connection
<b>Grey</b>	No Connection

Tape off the Orange and Blue wires so that they are not shorting against each other, other wires, or any ground conductor.

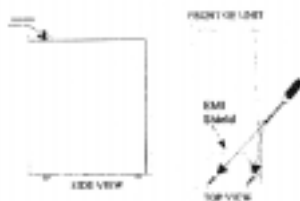
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## 2.7 Closing Up the Unit

The installation of the VCR232C/VCR232CR is now complete. Prior to energizing the unit and configuring the alarms through the front panel display, the covers must be placed back on the unit for safety purposes

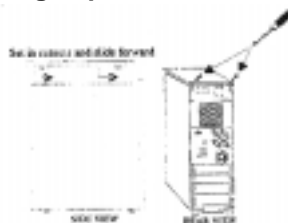
Replace the EMI shield using the retaining screws originally installed as illustrated in **Figure 8**.

**Figure 8 Replacing the EMI Shield**



Replace the top cover using the retaining screws as illustrated in **Figure 9**.

**Figure 9 Replacing Top Cover**



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## 2.8 Applying Power After Installation

It is mandatory to use the following steps to start-up the UPStation S. **DO NOT CLOSE THE OUTPUT BREAKER UNTIL THE ALARM CONTACTS HAVE BEEN CONFIGURED.**

- Reinstall battery fuses (3.5 - 6 kVA) or close battery breaker (8 - 18 kVA). There will be a small arcing sound that is normal when the second fuse is installed.
- Reinstall input fuses (3.5 - 6 kVA) or close input breaker (8 - 18 kVA).
- Turn on (close) customer supplied feeder breaker.
- The unit will now begin its restart. Upon completion of unit self-testing, the unit will alarm and notify you to close the output breaker and press the ON button. Silence the alarm, **DO NOT CLOSE THE OUTPUT BREAKER.** Proceed to **3.2 - System Setup** for relay contact configuration setup.



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## 3.0 SYSTEM SETUP

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### 3.1 Programming the Configurable Relays

The final step in the installation of the VCR232C/VCR232CR is to reapply power and silence the alarm. Follow the steps in **Figure 10** to begin the process of defining the relays.

**Figure 10 Steps in Defining Configurable Relays**

STEP	LCD SCREEN	ACTION	STEP	LCD SCREEN	ACTION
1	Close Breaker then Press "ON". Press  to check configuration.	DO NOT CLOSE OUTPUT BREAKER Press:	5	Input Voltage 208/120 Volts Press:  for last item;	
2	MAIN MENU I. Configuration  to select;	Press:	6	Advanced Configuration  to select;	Press:
3	I. CONFIGURATION A. Review  for next item;	Press:	7	Input Wiring L1-L2-N-G  for last item;	Press:
4	I. CONFIGURATION B. Change Settings  to select;	Press:	8	Custom Relays  to select; Proceed to 3.2	Press:

### 3.2 System Setup

The two separate relays can be configured with one, all or any variation of the following alarms:

- UPS on Battery
- Low Battery
- UPS on Bypass
- Battery Test Fail
- UPS Fail
- Overload

**Figure 11** is an example of how to configure Relay Number 1 to close if a UPS on Battery and/or UPS Fail alarm is present

**Figure 11 Configuring a Relay to Respond to Alarms**

STEP	LCD SCREEN	ACTION	STEP	LCD SCREEN	ACTION
1	Custom Relay's 1) Review → for next item;	Press: →	9	Relay # 1 UPS on Bypass NO → for next item;	Press: →
2	Custom Relay's 2) Program ← to select;	Press: ←	10	Relay # 1 Batt Test Fail NO → for next item;	Press: →
3	Select Relay 1 ← to select;	Press: ←	11	Relay # 1 UPS Fail NO ← to select;	Press: ←
4	Relay # 1 UPS On Battery NO ← to select;	Press: ←	12	Relay # 1 UPS Fail NO (flashing) → for next item;	Press: →
5	Relay # 1 UPS on Battery NO (flashing) → for next item;	Press: →	13	Relay # 1 UPS Fail YES (flashing) ← to select;	Press: ←
6	Relay # 1 UPS On Battery YES (flashing) ← to select;	Press: ←	14	Relay # 1 UPS Fail YES → for next item;	Press: →
7	Relay # 1 UPS On Battery YES → for next item;	Press: →	15	Relay # 1 Overload NO → for next item;	Press: →
8	Relay # 1 Low Battery NO → for next item;	Press: →	16	Relay # 1 End of List NO ESC to quit	Press: ESC

The factory default for Relay 1 and 2 is to have no alarms selected. After the escape button is pressed in **Figure 11**, the unit returns to the Select Relay 1 right arrow for next item screen. If the right arrow is pressed, the Select Relay 2 screen is present. From this screen, Select Relay 2 can be configured using the same procedures as illustrated in **Figure 11 - step 3**. To begin the process, press the return arrow button

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After completion of relay configuration, the display must be navigated back to its original screen. This is accomplished by pressing ESC until the “Close Output Breaker and Press ON” screen is present. **DO NOT CLOSE THE OUTPUT BREAKER AT THIS TIME.**

### **3.3 Placing the Unit Back Online**

Once final connection is made to the remote monitoring equipment. The unit may be placed back online. Verify that power can be resupplied to the load. Once this has been accomplished, close the output breaker on the UPStation So and press the ON button. The unit will enter a self-test mode. Upon completion of self-test, the unit will indicate Normal Operation. The unit is now on line and operating according to specifications.

### **3.4 Technical Assistance**

If there are any questions regarding the operation of the VCR232C/VCR232CR, contact Customer Service and Support, **1-800-543-2378**, for service.

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**UPStation® S**

**VCR232C Option**

**3.5 kVA to 18 kVA**

## **Technical Support**

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